

What is claimed is:

1. A method for synchronizing network nodes in a subnetwork, where the network nodes have timers and at least one of the network nodes undertakes the function of a master, the time on the master being used as the reference time for the subnetwork, the method comprising:

insuring no unauthorized communication takes place in the subnetwork;
sending a delay-time measurement message to every network node in the subnetwork in order to ascertain a signal delay time;
sending a time setting message to every network node; and
aligning the time on the network nodes with the reference time for the subnetwork,
wherein each of the first three method steps are performed my by the master.

2. The method as claimed in claim 1, further comprising storing the signal delay time for the network nodes in the master.

3. The method as claimed in claim 1, wherein a network node, upon receiving a delay-time measurement message, simulates the alignment of a time thereof with the reference time at least once, and then sends a response to the master.

4. The method as claimed in claim 1, wherein the time on a network node is aligned with the reference time for the subnetwork immediately after reception of the time setting message.

5. The method as claimed in claim 1, wherein the time on a network node is aligned with the reference time for the subnetwork by way of a step-by-step basis.

6. The method as claimed in claim 1, wherein at least one step is repeated a plurality of times.

7. The method as claimed in claim 6, characterized in that the master ascertains the signal delay time by sending a plurality of delay-time measurement messages and using formation of a mean.

8. The method as claimed in claim 1, wherein the master ascertains all the network nodes which are part of the subnetwork.

9. The method as claimed in claim 1, wherein at least one network node in a subnetwork undertakes the function of the master in another subnetwork.

10. The method as claimed in claim 1, wherein the network nodes in a subnetwork are connected to one another by way of an optical transmission medium.

11. The method as claimed in claim 2, wherein a network node, upon receiving a delay-time measurement message, simulates the alignment of a time thereof with the reference time at least once, and then sends a response to the master.

12. The method as claimed in claim 2, wherein the time on a network node is aligned with the reference time for the subnetwork immediately after reception of the time setting message.

13. The method as claimed in claim 3, wherein the time on a network node is aligned with the reference time for the subnetwork immediately after reception of the time setting message.

14. The method as claimed in claim 2, wherein the time on a network node is aligned with the reference time for the subnetwork by way of a step-by-step basis.

15. The method as claimed in claim 3, wherein the time on a network node is aligned with the reference time for the subnetwork by way of a step-by-step basis.

16. The method as claimed in claim 4, wherein the time on a network node is aligned with the reference time for the subnetwork by way of a step-by-step basis.

17. The method as claimed in claim 2, wherein the master ascertains all the network nodes which are part of the subnetwork.

18. The method as claimed in claim 3, wherein the master ascertains all the network nodes which are part of the subnetwork.

19. The method as claimed in claim 4, wherein the master ascertains all the network nodes which are part of the subnetwork.

20. The method as claimed in claim 5, wherein the master ascertains all the network nodes which are part of the subnetwork.

21. The method as claimed in claim 2, wherein at least one network node in a subnetwork undertakes the function of the master in another subnetwork.

22. The method as claimed in claim 3, wherein at least one network node in a subnetwork undertakes the function of the master in another subnetwork.

23. The method as claimed in claim 4, wherein at least one network node in a subnetwork undertakes the function of the master in another subnetwork.

24. The method as claimed in claim 5, wherein at least one network node in a subnetwork undertakes the function of the master in another subnetwork.

25. The method as claimed in claim 8, wherein at least one network node in a subnetwork undertakes the function of the master in another subnetwork.

26. A method, comprising:
insuring no unauthorized communication takes place in a subnetwork;
sending a delay-time measurement message to every network node in the subnetwork in order to ascertain a signal delay time;
sending a time setting message to every network node; and

aligning the time on the network nodes with the reference time for the subnetwork.